



THE UNIVERSITY OF NEWCASTLE

NEW SOUTH WALES

AUSTRALIA

A PAL III ASSEMBLER
FOR THE PDP-11 COMPUTER

- PROGRAM LISTING -

D. L. HEISE

Department of

ELECTRICAL ENGINEERING

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1 ;SEGMENT #1      MAIN PROGRAM - PAL3H
2 ;      PAL3H      #0
3 ;      LEADER    #9
4 ;      OBJPCH    #15
5
6 .TITLE PAL3H
7 .GLOBL INSTR1 , INSTR2 , LABEL , NOCODE , OBJPCH , WREND , WRSYM
8 .GLOBL BUF2 , CR , END , ERRCNT , FATAL , LC , LF , LFIN , LNK2 , LNK4
9 .GLOBL MSG1 , NOLIST , OBJPTR , OUTBUF , SFIN , SPACE , SYMCNT , SYMTBL , TAB
10 R0=%0
11 R1=%1
12 R2=%2
13 R3=%3
14 R4=%4
15 R5=%5
16 SP=%6
17 PC=%7
18 CR=15
19 LF=12
20 SPACE=40
21 TAB=1
22
23 ;      PAL III ASSEMBLER
24
25 ;      THIS PROGRAM ASSEMBLES PDP-8 PROGRAMS WRITTEN IN
26 ;PAL III ASSEMBLY LANGUAGE.  THE OUTPUT IS PDP-8
27 ;MACHINE CODE IN A FORMAT ACCEPTABLE TO THE PDP-8
28 ;ABSOLUTE BINARY LOADER.  ,-(SP)
29
30      FILE SPECIFICATIONS
31
32 ;FILE          USE          DEVICE
33 ; 1  SOURCE INPUT          CHOSEN BY USER
34 ; 2  LISTING OUTPUT        CHOSEN BY USER
35 ; 3  OBJECT OUTPUT         CHOSEN BY USER
36 ; 4  MESSAGE OUTPUT        KEYBOARD
37 ; 5  CSI COMMAND INPUT     KEYBOARD
38
39
40 ;V-02L
41 PAL3H:  MOV #LNK5 , -(SP)
42          EMT 6              ; .INIT
43          MOV #FIL5 , -(SP)
44          MOV #LNK5 , -(SP)
45          EMT 16             ; .OPEN
46          MOVE #LNK4 , -(SP)
47          EMT 6              ; .INIT
48          MOV #FIL4 , -(SP)
49          MOV #LNK4 , -(SP)
50          EMT 16             ; .OPEN

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51      MOV #MSG1,-(SP)
52      MOV #LNK4,-(SP)
53      EMT 2           ;.WRITE MESSAGE
54      MOV #LNK4,-(SP)
55      EMT 1           ;.WAIT
56  GETCSI: MOV #BUF4,-(SP)
57      MOV #LNK4,-(SP)
58      EMT 2           ;.WRITE #
59      MOV #LNK4,-(SP)
60      EMT 1           ;.WAIT
61      MOV #BUF5,-(SP)
62      MOV #LNK5,-(SP)
63      EMT 4           ;.READ CSI COMMAN
64      MOV #LNK5,-(SP)
65      EMT 1           ;.WAIT
66      MOV #CMDBUF,-(SP)
67      EMT 56          ;.CSI1
68      TST (SP)+       ;TEST TOP OF STACK
69      BNE GETSCI     ;GO GET ANOTHER COMMAND IF SE
70      MOV #LNK3,CSIBLK+2
71      MOV #FIL3,CSIBLK+4
72      MOV #2,CMDBUF
73      MOV #CSIBLK,-(SP)
74      EMT 57          ;.CSI2 FOR FIRST OUTPUT FILE
75      TST FIL3+4
76      BNE TST3
77      MOV OBJ,FIL3+4   ;IF NO EXTENSION GIVEN, GIVE .OBJ
78  TST3: BIT #3,(SP)+  ;ANY MORE OUTPUT FILES?
79      BNE NOFIL2     ;IF NOT, GO TO NOFIL2
80      MOV #LNK2,CSIBLK+2
81      MOV #FIL2,CSIBLK+4
82      MOV #2,CMDBUF
83      MOV #CSIBLK,-(SP)
84      EMT 57          ;.CSI2 FOR SECOND OUTPUT FILE
85      MOV (SP)+,R0
86      BIC #177774,R0
87      CMP R0,#1      ;ANY MORE OUTPUT FILES?
88      BEQ TST2
89      JMP CLOSE4     ;IF SO, ERROR, CLOSE FILES
90  TST2: TST LNK2+6    ;IF SECOND OUTPUT FILE SPEC EMPTY
91      BEQ NOFIL2     ;GO TO NOFIL2
92      CLR NOLIST
93      BR GET1
94  NOFIL2: MOV #2,NOLIST ;SET NO LISTING INDICATOR
95  GET1:  MOV #LNK1,CSIBLK+2
96      MOV #FIL1,CSIBLK+4
97      CLR CMDBUF
98      MOV #CSIBLK,-(SP)
99      EMT 57          ;.CSI2 FOR INPUT FILE SPEC
100     MOV (SP)+,R0

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NUMBER OF PROGRAM LINES

SEGMENT	COUNT
1	380
2	223
3	518
4	285
5	211
6	19

TOTAL	1636
